

AMENDMENTS TO THE CLAIMS

1-10. (Canceled)

1/1. (Currently amended) An architecture for an automation system, the automation system used to remotely control and monitor power-consuming devices drawing power from a power line in a building, the architecture comprising:

C1 a ~~look-up~~ lookup service maintaining a database of (1) the power-consuming devices including their attributes of device type and physical location, and (2) device objects corresponding to the power-consuming devices including a name for each device object mapped to at least one address;

a soft state store managing refresh information for ~~refreshing~~ the power-consuming devices and the device objects;

a publication/subscription eventing component enabling subscriptions to events related to changes in the refresh information managed by the soft state store; and,

a power line monitor detecting ~~super-imposed~~ superimposed transmissions from the power-consuming devices on the power line, which signal problems associated with the power-consuming devices.

2/2. (Previously amended) The architecture of claim 1/1, wherein the power line monitor uses pattern-based detection for detecting unacceptable power line activity.

4/3. (Previously amended) The architecture of claim 2/2, wherein the power line monitor matches power line patterns against unacceptable power line patterns stored in a pattern

database.

3 14. (Previously amended) The architecture of claim ¹14, wherein the power line monitor uses model-based detection for detecting acceptable power line activity.

5 15. (Previously amended) The architecture of claim ³14, wherein the power line monitor tests power line patterns against a pattern model of acceptable power line patterns.

16-21. (Canceled)

22. (New) A system for detecting device failures in an automation system for remotely controlling a power-consuming device in a building, the system comprising:
a power line providing power to the power-consuming device;
a computing device in communication with the power-consuming device by way of the power line and receiving from the power-consuming device a first set of signals superimposed on the power line, and transmitting to the power-consuming device a second set of signals superimposed on the power line; and

a power line monitor that detects a first pattern in the first and second sets of superimposed signals, and performs a predetermined action if the first pattern matches a second pattern stored in a database of unacceptable power line patterns.

23. (New) The system of claim 22 wherein the unacceptable power line patterns are represented in an extended regular expression language.

24. (New) A system for detecting device failures in an automation system for remotely controlling a power-consuming device in a building, the system comprising:

a power line providing power to the power-consuming device;

CI a computing device in communication with the power-consuming device by way of the power line and receiving from the power-consuming device a first set of signals superimposed on the power line, and transmitting to the power-consuming device a second set of signals superimposed on the power line; and

a power line monitor that detects a pattern in the first and second sets of superimposed signals, and performs a predetermined action if the pattern fails to conform to a model of acceptable power line patterns.

25. (New) The system of claim 24 wherein the model is a probabilistic model.

26. (New) The system of claim 24 wherein the model is a statistical model.

27. (New) The system of claim 24 wherein the model is a Bayesian network.

28. (New) The system of claim 24 wherein the model is a support vector machine.

29. (New) The system of claim 24 wherein the model is a classifier.

30. (New) In an automation system for remotely controlling a power-consuming device in a

building, the system including: a power line providing power to the power-consuming device;
and a computing device in communication with the power-consuming device by way of the
power line and receiving from the power-consuming device a first set of signals superimposed on
the power line, and transmitting to the power-consuming device a second set of signals
superimposed on the power line, a method comprising:

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 detecting a first pattern in the first and second sets of superimposed signals; and
 determining whether the first pattern matches a second pattern stored in a database of
unacceptable power line patterns; and,
 if the first pattern matches the second pattern, performing a predetermined action.

31. (New) The method of claim 30 wherein the unacceptable power line patterns are
represented in an extended regular expression language.

32. (New) In an automation system for remotely controlling a power-consuming device in a
building, the system including: a power line providing power to the power-consuming device;
and a computing device in communication with the power-consuming device by way of the
power line and receiving from the power-consuming device a first set of signals superimposed on
the power line, and transmitting to the power-consuming device a second set of signals
superimposed on the power line, a method comprising:

 detecting a pattern in the first and second sets of superimposed signals; and
 determining whether the pattern fails to conform to a model of acceptable power line
patterns; and,
 if the pattern fails to conform to the model, performing a predetermined action.

33. (New) The system of claim 32 wherein the model is a probabilistic model.
34. (New) The system of claim 32 wherein the model is a statistical model.
35. (New) The system of claim 32 wherein the model is a Bayesian network.
36. (New) The system of claim 32 wherein the model is a support vector machine.
37. (New) The system of claim 32 wherein the model is a classifier.
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